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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,467	01/06/2004	Yun-gi Kim	1349.1341	2354

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EXAMINER

MRUK, GEOFFREY S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/751,467

Applicant(s)

KIM ET AL.

Examiner

Geoffrey Mruk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Pollard (US 6,540,337 B1).

With respect to claim 1, Pollard discloses a bubble-ink jet print head (Fig. 5) comprising:

- a substrate (Fig. 5, element 606) having ink chambers (Fig. 5, element 622) to store ink and resistance heat emitting bodies (Fig. 5, element 614) to heat ink (Column 4, lines 66-67) disposed thereover, and
- an ink supply passage (Fig. 5, Element 604a) which penetrates the substrate and which is connected with the ink chambers, the ink supply passage including:
- a first trench (Fig. 8a, elements 802f, 808) formed at a first surface of the substrate (Fig. 8a, element 806) in a first pattern having a separating distance from at least one of inlets of the ink chambers and connecting portions between the adjacent ink chambers, the first surface of the substrate having the ink chambers disposed thereover (Fig. 5, element 618), and

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- a second trench (Fig. 8a, element 805p, 805q) formed at a second surface of the substrate (Fig. 8a, element 806) in a second pattern, having an area equal to or smaller than that (Fig. 12, element w) of the first trench in the range of the first pattern of the first trench, and in communication with the first trench, wherein the first trench has a depth (Fig. 8a, element t) from  $5\mu\text{m}$  to  $20\mu\text{m}$  (Column 5, lines 24-26, i.e. thickness t from  $100\mu\text{m}$ - $2000\mu\text{m}$ ; Column 7, lines 61-63, i.e. 10-80% of t).

With respect to claim 3, Pollard discloses a bubble-ink jet print head (Fig. 5) comprising:

- a substrate (Fig. 5, element 606) having ink chambers (Fig. 5, element 622) to store ink and resistance heat emitting bodies (Fig. 5, element 614) to heat ink (Column 4, lines 66-67) disposed thereover, and
- an ink supply passage (Fig. 5, element 604a) which penetrates the substrate and which is connected with the ink chambers, the ink supply passage including:
- a first trench (Fig. 8a, elements 802f, 808) formed at a first surface of the substrate (Fig. 8a, element 806) in a first pattern having a separating distance from at least one of inlets of the ink chambers and connecting portions between the adjacent ink chambers, the first surface of the substrate having the ink chambers (Fig. 5, element 618) disposed thereover and
- a second trench (Fig. 8a, element 805p, 805q) formed at a second surface of the substrate (Fig. 8a, element 806) in a second pattern, having an area equal to or smaller than that (Fig. 12, element w) of the first trench in the range of the first

pattern of the first trench, and in communication with the first trench, wherein the separating distance (Column 8, lines 3-5, i.e. shallow shelf) is from  $1\mu\text{m}$  to  $5\mu\text{m}$  (Column 7, lines 55-57, i.e. trench widths; Column 8, line 4, i.e. 5-150% of the trench width).

With respect to claim 25, Pollard discloses an inkjet print head (Fig. 5), comprising:

- a substrate (Fig. 5, element 606), at least one heater (Fig. 5, element 614) formed on a top surface of the substrate which heats ink disposed (Column 4, lines 60-67),
- an ink chamber (Fig. 5, element 622) disposed at least partially over the at least one heater, and an ink supply opening extending through the substrate, the ink passage in fluidic communication with the ink supply chamber and the ink chamber, the ink supply opening including
- a first trench (Fig. 8a, elements 802f, 808) formed at an ink chamber side of the substrate (Fig. 8a, element 806) in a first pattern having a separated distance from at least one of inlets of the ink chambers and connecting portions between the adjacent ink chambers, and
- a second trench (Fig. 8a, element 805p, 805q) formed at a second surface of the substrate (Fig. 8a, element 806) in a second pattern, having an area equal to or area smaller than that (Fig. 12, element w) of the first trench in the range of the first pattern of the first trench, to communicate with the first trench, wherein the first trench has a depth (Fig. 8a, element t) from  $5\mu\text{m}$  to  $20\mu\text{m}$  (Column 5, lines

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24-26, i.e. thickness  $t$  from  $100\mu\text{m}$ - $2000\mu\text{m}$ ; Column 7, lines 61-63, i.e. 10-80% of  $t$ ).

### ***Response to Arguments***

Applicant's arguments, see page 5 lines 10-14, filed 21 February 2006, with respect to the rejection(s) of claim(s) 1, 3, and 25 under 35 U.S.C. 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Pollard (US 6,540,337 B1).

The examiner makes of record that the previous claim objections dated 6 December 2006 are withdrawn in view of applicant's remarks.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM  
5/12/2006

GM

  
5/15/06  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**